

BAWOLSKI, Roman; CHMIEL, Eugeniusz

Ultrasonic testing of rolling stock parts and railroad surfaces.  
Przegl kolej mechan 10 [i.e.15] no.12:366-375 D '63.

1. Department of Metal Technology and Welding, Central Institute  
of Research and Development of Railway Techniques, Warsaw.

BAWOLSKI, Roman; CHMIEL, Eugeniusz

Ultrasonic testing of railroad rolling stock parts and surfaces.  
Pt.4. Przegl kolej mechan 11[1.9]6] no.5:149-153 My '64.

1. Department of Metal Technology and Welding, Central Institute  
for Research and Development of Railway Techniques, Warsaw.

BAWOLSKI, Roman; CHMIEL, Eugeniusz

Ultrasonic defectoscopy of parts of the railway rolling stock and surface installations. Przegl kolej mechan 16 [i.e. 15] no. 6: 153-158 Je '63.

1. Zaklad Technologii Metali i Spawalnictwa. Centralny Ośrodek Badan i Rozwoju Techniki Kolejnictwa, Warszawa.

LISOWSKI, Zbigniew; BAWOLSKI, Roman

Organization of studies on the ultrasonic elements of the rolling stock of the Polish State Railways. Przegl kolej mechan 11 no.10: 250-254 O '64

1. Department of Metal Technology and Welding, Central Institute of Research and Development of Railway Techniques, Warsaw.

BAVCISKI, Roman; CHMIEL, Eugeniusz

Supersonic testing of rolling stock parts and railroad surfaces. Pt. 3. Przegl kolej mechan 11 [i.e. 16] no.4: 100-105 Ap '64.

1. Department of Metal Technology and Welding, Central Institute for Research and Development of Railway Techniques, Warsaw.

BAWOLSKI, Roman

Ultrasonic testing of certain parts of rail vehicles. Przegl kolej  
mechan 11 no.12:313-317 D '64.

1. Department of Metal Technology and Welding Practice of the  
Central Institute of Research and Development of Railway Tech-  
niques, Warsaw.

BAWOLSKI, Stanislaw

The influence of short day upon the development of sainfoin. Roczn. nauk  
roln. rosl. 82 no. 4: 941-963 '61.

1, Zaklad Fizjologii Roslin, Instytut Uprawy, Nawozenia i Gleboznawstwa,  
Pulawy.

BAWOLSKI, Stanislaw

Introductory studies on the development of the root system and the crop residues value of perennial Papilionaceous plants. Postępy nauk roln 8 no.2:59-74. M~~r~~-A~~p~~ '61.

1. Instytut Uprawy, Nawożenia i Gleboznawstwa, Pulawy.



BAXA, F.

"Breeding Heat-Loving Plants in Slovakia." p. 202, Bratislava, Vol. 6, 1951.

SO: East European Accessions List, Vol. 3, No. 9, September 1954, Lib. of Congress

BAXA, F.

"Rice and its water requirement." (p.31). BIOLOGICKY SBORNIK. (Slovenska akademie vied a umeni) Bratislava. Vol. 7, No.1/2, 1952.

SO: East European Accessions List, Vol 3, No 8, Aug 1954.

38031

G/002/62/000/005/002/002  
D409/D301

11.9100  
AUTHORS:

Baxa, Jozef, and Veselý, Václav (Bratislava, ČSSR)

TITLE:

On the oxidation of medium-viscous lubricating oils  
of Mukhanovo crude-oil origin

PERIODICAL:

Chemische technik, no. 5-6, 1962, 278-282

TEXT:

The article analyzes the lubricating-oil cuts obtained from Mukhanovo crude and investigates their oxidation properties. A medium-viscous lubricating-oil cut (specific gravity 0.9189 at 20°C, molecular weight 427, viscosity 53.4 Centistokes at 50°C) was chromatographically separated according to the Sergienko method (Ref. 17: S.R. Sergienko and A.A. Mikhnovskaya: Trudy instituta nefti 12, 136 (1958)) into mono-, bi-, and tri-aromatic components. The oxidation stability of these components was investigated in an apparatus developed by the Slovak Institute of Technology in Bratislava, ČSSR, based on the principle of oxygen absorption by the oil surface in a closed system. The oxidation was performed on 2-gram oil specimens at 140°C and normal pressure, and the process charac-

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On the oxidation of medium-viscous ...

G/002/62/000/005/002/002  
D409/D301

terized by the oxygen absorption dependent on time and the properties of the oil specimens after 10 mg of oxygen have been absorbed. The test results are summarized as follows: The Mukhanovo crude-oil has no characteristic induction periods. Most stable are mono-aromatics, followed by bi- and tri-aromatics and finally by saturated components. Most frequent asphaltene and gum formation was observed in tri-aromatics, followed by bi-aromatics, saturated components and finally mono-aromatics. (These results contradict those observed in American paraffin- and naphthene-base crudes and may be attributed to the higher sulphur content of Mukhanovo crude-oil). Mixtures of individual components behave quite differently, showing a certain inhibiting effect of aromatics which act as anti-oxidants against saturated components, but not against other aromatics. The maximum oxidation-inhibiting effect was observed when saturated components were mixed with 1 - 3% tri-aromatics, 3 - 5% bi-aromatics, or 10 - 30% mono-aromatics. The lifetime of oils generally decreases with increasing oxidation temperatures; however a decrease in asphalt and gum products could be observed at oxidation temperatures around 150°C. Most stable medium-viscous lubricating oils

Card 2/3

On the oxidation of medium-viscous ...

G/002/62/000/005/002/002  
D409/D301

from Mukhanovo crude can be obtained by enrichment of saturated components and stabilization with poly-aromatic components. There are 6 tables and 9 figures. The most important English-language reference is: J.L. Jezl, H.P. Stuart, and A. Schneider: Ind. Engng. Chem. 50, 947 (1958).

SUBMITTED: January 22, 1962

Card 3/3

VESPLY, V.; BAXA, J.

Oxidation stability of hydrogenated lubricating oils. Pt.5.  
Ropa a uhlie 7 no.3:65-72 Mr '65.

1. Chair of Petroleum Chemistry and Technology of the Faculty  
of Chemistry of the Slovak Higher School of Technology, Bratislava.

BAXA, J.; GRUBA, G.; KUBICZKOVA, H.; VESELY, V.

Oil oxidation. Part 2: Oxidation process and products. Ropa  
a uhlie 5 no.1:7-11 Ja '63.

1. Katedra chemie a technologie ropy, Slovenska vysoka skola  
technicka, Bratislava.

RAYA, Jozsef, Ing. (Bratislava, Kollarovo namestie, Ceskoslovenska socialisticka republika); VESELY, Vaclav, Prof., ing. (Bratislava, Kollarovo namestie, Ceskoslovenska socialisticka republika)

Oxidation of lubricating oils. Pt. 3. Acta chimica Hung 37  
no.2:147-162 '63.

1. Lehrstuhl fur Erdoltechnologie, Slowakische Technische Hochschule, Bratislava, Ceskoslovenska socialisticka republika.



BAXA, Jozef; VESKLY, Vaclav

Group composition and oxidation stability of viscous oils at low temperatures. Ropa a uhlie 5 no.8:227-230 Ag'63

1. Katedra chemie a technologie rcpy, Slovenska vysoka skola technicka, Bratislava.

BEDNAR, Milan, inz.; BAXOVA, Jarmila

Problems of technology standardization in heavy piece production.  
Podn org 18 no. 6:255-258 Je '64.

1. Research Institute of Mechanical Engineering and Organization.

BAY, A.D., starshiy nauchnyy sotrudnik

Cutting down of trees by a single feller without assistants and the controlled felling of trees in stands composed of large trees. Trudy VSNIPILesdrev no.7:68-73 '63.

(MIRA 17:2)

1. Laboratoriya tekhnologii i organizatsii lesorazrabotok Vostochno-Sibirskogo nauchno-issledovatel'skogo i proyektnogo instituta lesnoy i derevoobrabatyvayushchey promyshlennosti.

L 24434-65 EWI(m)/T/ENP(t) IJP(c) JD/WB

ACC NR: AT6006477

SOURCE CODE: UR/2680/65/000/024/0096/0101

AUTHORS: Layner, D. I.; Bay, A. S.

36  
BH

ORG: State Scientific Research and Design Institute of Alloys and Nonferrous Metalworking, Moscow (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov)

TITLE: Growth forms on the surface of titanium sinter

SOURCE: Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov. Trudy, no. 24, 1965. Metallorazeniye i obrabotka tsvetnykh metallov i splavov (Metal science and the treatment of nonferrous metals and alloys), 96-101

TOPIC TAGS: titanium, titanium oxide, electron microscopy, <sup>metal</sup>oxidation

ABSTRACT: The object of this investigation was to extend earlier published work of D. I. Layner, A. S. Bay, and M. I. Tsypin (FMM, vyp. 2, 1963, t. 16, str. 225-231) and, in particular, to investigate the surface structure of titanium after it was oxidized by water vapor at 900C, in air at 850 and 1000C, and in oxygen at 1200C. The investigation was conducted by optical and electron microscopy. Electronmicroscope pictures of the various specimens are presented. It was found that the microstructure of the surface changes with the change in the nature of the oxidizing medium. It is suggested that the observed crystalline shapes arise from a migration of titanium ions.

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L 24434-66

ACC NR: AT6006477

This explanation was proposed by V. I. Arkharov and Ye. B. Blankova (FMM, vyp. 1, 1962, t. 10). Orig. art. has: 6 graphs.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

Card 2/2 *da*

I 24433-66 ENT(m)/EPF(n)-2/I/EWP(t) IJP(c) JD/WW/JG/WB	
ACC NR: AT6006476	SOURCE CODE: UR/2680/65/000/024/0093/0095 47 46 B+1
AUTHORS: <u>Layner, D. I.; Bay, A. S.</u>	
ORG: <u>State Scientific Research and Design Institute of Alloys and Nonferrous Metalworking, Moscow</u> (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov) ✓	
TITLE: Certain peculiarities of the <u>oxidation</u> mechanism of the oxidation of <u>titanium and zirconium</u> 18 27	
SOURCE: Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov. Trudy, no. 24, 1965. Metallovedeniye i obrabotka tsvetnykh metallov i splavov (Metal science and the treatment of nonferrous metals and alloys), 93-95	
TOPIC TAGS: zirconium, zirconium oxide, electron microscopy, <u>titanium</u> , <sup>metal</sup> oxidation	
ABSTRACT: The object of the investigation was to extend earlier published work on titanium by D. I. Layner, A. S. Bay, and M. I. Tsypin, (FMM, vyp. 2, 1963, t. 16), particularly the study of the microstructure of zirconium after it was exposed to air and water vapor at 1000C for periods of 30 and 120 minutes respectively and to compare the latter with the microstructure of titanium subjected to the same experimental conditions (see reference above). The microstructure was studied by means of electron microscopy. Several electron microscope pictures of the zirconium specimens are	
Card 1/2	

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ACC NR: AT6006476

presented. It was found that the oxide layer had an overall thickness of 130  $\mu$ . From the appearance of the electron microscope pictures, it is concluded that the surface oxidation of zirconium is controlled by oxygen atom migration and thus different from the surface oxidation of titanium where the dominating mechanism is the migration of titanium ions to the surface. Orig. art. has: 2 graphs.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 002

Card 2/2dda

LAYNER, D.I.; DRUPNIKOVA-PERLINA, Ye.I.; BAY, A.S.

Electron microscopy for the determination of metal texture. Trudy  
Giprotsvetmetobrabotka no.20:142-147 '61. (MIRA 15:2)  
(Metallography) (Electron microscopy)



S/126/62/013/005/028/031  
E111/E435

AUTHORS: Samsonov, V.P., Bay, A.S.

TITLE: Some peculiarities in the structure of scale on titanium

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.5, 1962, 787-788

TEXT: The structure of scale produced on titanium at 850 and 950°C in air-stream mixtures and in steam was studied by the fracture method. In the mixture, at 850°C, scaling begins with the formation of a finely crystalline layer, on whose surface needle-like rutile crystals form almost immediately; these link up later to form a continuous layer of long crystals on which a new finely-crystalline layer forms, the process being repeated. At 950°C the metal is covered with a thin boundary layer, beyond which is a fine-grained layer and, finally, another fine-grained layer with a columnar structure. Similar effects were obtained in steam but the growth of layers was more rapid. There are 2 figures.  
Card 1/2

Some peculiarities ...

S/126/62/013/005/028/031  
E111/E435

ASSOCIATION: Institut „Giprotsvetmetobrabotka,,  
(Giprotsvetmetobrabotka" Institute)

SUBMITTED: December 2, 1961 (after revision)

Card 2/2

LAYNER, D.I.; BAY, A.S.

Mechanism of titanium oxidation. Fiz. met. i metalloved. 14 no.2:283-286  
Ag '62. (MIRA 15:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut  
obrabotki tsvetnykh metallov.  
(Titanium—Metallography) (Oxidation)

S/032/62/028/006/015/025  
B101/B138

AUTHORS: Layner, D. I., Krupnikova, Ye. I., and Bay, A. S.

TITLE: Electron microscopic determination of the preponderant orientation of polycrystalline materials

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 6, 1962, 703 - 705

TEXT: A report is given on the determination of the texture of polycrystalline materials by electron microscopic recording of etching figures. Coppernickel 80/20, annealed copper and  $\text{Cu}_2\text{O}$ , obtained by oxidation of Cu at 1020°C and quenching in water, were investigated. Etching of copper-nickel was carried out in a mixture of 50% acetic acid and 50% nitric acid, etching of Cu in 50%  $\text{HNO}_3$ , and of  $\text{Cu}_2\text{O}$  in 10 - 15%  $\text{HNO}_3$ . The etching figures were investigated with an EM-3 (EM-3) electron microscope using carbon replicas. The results agreed well with the data obtained from X-ray recordings of the pole figures. Results: (1) Annealed coppernickel deformed by 96% showed two types of etching figures, narrow grooves corresponding to the orientation (110), and lamellas with jagged edges,

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Electron microscopic determination...

S/032/62/028/006/015/025  
B101/B138

corresponding to the orientation (112). (2)  $\text{Cu}_2\text{O}$  showed the etching figures characteristic for (110). (3) Recrystallization of the copper could be traced by observing the etching figures. Cu samples deformed by 96% were annealed at 600°C for 1 sec, 10 min or 1 hr. The orientations (110), (001), and (112) were observed after 1 sec. After 10 min, the number of orientations was reduced to two: (110) and (001), and after 1 hr, only one orientation was left: (001). There are 5 figures.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut po obrabotke tsvetnykh metallov (State Design and Planning Scientific Research Institute for the Processing of Nonferrous Metals)

Card 2/2

LAYNER, D.I. (Moskva); RAY, A.S. (Moskva)

Mechanism of titanium oxidation in the 800 - 1000° temperature.  
range. Izv. AN SSSR. Met. i gor. delo no.5:145-151 S-0 '63.  
(MIRA 16:11)

ACCESSION NR: AT3008650

S/2598/63/000/009/0264/0269

AUTHORS: Blanter, M. Ye.; Samsonov, V. P.; Bay, A. S.; Maslovskiy, V. A.

TITLE: Effect of the structure of titanium on the structure of its scale

SOURCE: AN SSSR, Institut metallurgii. Titan i yego splavy\*, no.9, 1963, 264-269

TOPIC TAGS: titanium, titanium sponge, TG-00, scale, stratification of scale, color of scale, color of stratification of scale, color of scale strata

ABSTRACT: The paper describes an experimental investigation of the oxidation of Ti which apparently is affected both by the antecedent treatment of specimens (rolling, vacuum anneal, etc.) and by the different purities of the metal employed. The specimens used were prepared from Ti sponge TG-00, pressed into electrodes which were melted in a vacuum arc furnace. The ingots obtained were machined to achieve a pure surface and were hammer-forged to a thickness of 20 mm, hot-rolled to 2-mm thickness, and annealed for 30 min at 700° in an electric chamber furnace. Scale was removed by etching in a fusion of NaOH and NaNO<sub>3</sub>; reaction products were removed by H<sub>2</sub>SO<sub>4</sub>. Cold rolling to 1-mm thickness and cutting to 10x14-mm specimens followed. 30-min vacuum anneal at 10<sup>-4</sup> mm Hg at 600, 700, 750, 800, 850, 900, and 1,000° followed. Optical microscopy and X-ray diffraction analysis

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ACCESSION NR: AT3008650

shows that the growth of the oxide film at 900-1,000°C on annealed (A) Ti proceeds at a greater rate than on unannealed (UA) material. The scale on Ti consists essentially of 2 layers, a microcrystalline and a columnar layer. In Ti A for 30 min at 1,000° the microcrystalline layer, by contrast with the single layer on UA Ti, consists of two layers which differ in color and grain size. The deeper layer, which is closer to the parent Ti, is darker. X-ray diffraction shows in both cases the presence of rutile. The surfaces of the scale of A and UA Ti differ in color. In A Ti the surface has a bluish-grey color, in UA Ti a yellowish-white color. The oxidation of Ti begins along the grain boundaries. Crystals of newly formed rutile are found on the surface of the scale. They have a clearly bounded shape and are oriented identically and along straight lines. The growth of the crystals, apparently, has a dendritic character. Orig. art. has: 7 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 04Sep63

ENCL: 00

SUB CODE: CH, MA

NO REF SOV: 000

OTHER: 004

Card 2/2



L 41511-65 EWT(m)/EPP(c)/EWA(d)/EWP(t)/EWP(b) IJP(c) JD/WB

ACCESSION NR: AR4048178

S/0081/64/000/009/K002/K002 15  
b

SOURCE: Ref. zh. Khimiva. Abs. 9K15

AUTHOR: Layner, D.L., Bay, A. S., Tsy\*pin, M. I.

TITLE: Some characteristics of the oxidation of titanium in various media

CITED SOURCE: Tr. Gos. n.-i. i proyekt. in-ta splavov i obrabotki tsvetn. met.,  
vyp. 21, 1963, 62-66

TOPIC TAGS: titanium oxidation, titanium corrosion, titanium scale, scale formation,  
scale structure, oxygen diffusion, electrical resistivity

TRANSLATION: The rate-determining step in the oxidation of Ti in air at temperatures  
up to 1000°C is the diffusion of  $O_2$  into the Ti. In the presence of water vapor,  $Cl_2$  or  $Cl_2$   
the rate of oxidation increases. The electrical resistivity of rutile is on the order of  $10^{-2}$  ohm-cm, while during oxidation in air it

increases to  $3-4 \times 10^{10}$  ohm-cm. The reason for the acceleration of the oxidation process  
is an increase in the rate of diffusion of the reaction components. The rapid diffusion of  
Ti ions leads to the formation of a layer having a columnar structure on the outside of the

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ACCESSION NR: AR4048178

scale. The observation of two layers in the scale can serve as a reasonable basis for hypothesizing counter-diffusion through the scale. A change in the oxidative medium leads to a simultaneous change in the composition of the scale on Ti and in the morphological characteristics of the scale, while its phase composition remains the same. Bibliography: WU. 1. references. Authors' summary.

SUB CODE: MM

ENCLOSURE

*mm*  
Card 2/2

ACCESSION NR: AR4018340

8/0187/64/000/001/1099/1099

SOURCE: RZh. Metallurgiya, Abs. 11645

AUTHOR: Layner, D. I.; Tayepin, M. I.; Bay, A. S.

TITLE: Electron microscopic study of the scale structure on titanium

CITED SOURCE: Tr. Gos. n.-i. i proyekt. in-ta splavov i obrabotki tsvetn. met.,  
vy\*p. 21, 1963, 69-78

TOPIC TAGS: titanium scale, titanium oxidation

TRANSLATION: Cr-shadowed replicas of Ti scale were studied with an EM-3 electron microscope having a resolving power of  $\sim 100$  Å. When Ti is oxidized in air, the coarse outer crystalline layer does not penetrate into the interior of the scale even under drastic oxidation conditions (900 C, 5 hr). When Ti is oxidized in steam, the columnar layer of scale on Ti, formed by large fused acicular crystals, makes up the bulk of the scale. L. Petrova

SUB CODE: MM

ENCL: 00

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L 12788-63

EWI(q)/EWI(m)/BDS AFTTC/ASD JD

ACCESSION NR: AP3000790

S/0070/63/008/003/0477/0478

AUTHOR: Layner, D. I.; Tsy\*pin, M. I.; Bay, A. S.

TITLE: Structural relation between metal and oxide during oxidation of titanium

SOURCE: Kristallografiya, v. 8, no. 3, 1963, 477-478

TOPIC TAGS: martensite transformation, reciprocal lattice, electron microscope, Ti, rutile, microdiffraction

ABSTRACT: This study was undertaken because of disagreement relative to the existence and nature of interconnection between structures in metals and the coating of secondary products formed by chemical reaction. Previous work by two of the authors (Layner, D. I.; Tsy\*pin, M. I. Izv. AN SSSR. Otd. tekhn. n. Metallurgiya i toplivo, 5, 131-132, 1959) was unsatisfactory because of the impossibility of systematic study of these reaction films. This difficulty has now disappeared through application of microdiffraction technique with the aid of an electron microscope. The orientation of individual grains in the polycrystalline metal was ascertained by electron-optical representation of surface relief by means of an oxide replica, and the microdiffraction picture obtained from individual segments of the oxide film was then compared with the orientations of the oxides and the original metal. The authors discovered well-defined martensite structure in their Card 1/2

L 12788-63

ACCESSION NR: AP3000790

investigation. The experimental data obtained indicate that the oxidation film formed by low-temperature oxidation of titanium in air and water vapor is on the order of 10 sup -6 cm thick and consists of rutile crystals, the orientation of which defines the orientation of original metal grains and is uniform within this grain. Orientations on neighboring grains are unrelated. Orig. art. has: 1 figure and refers to two others.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov (State Scientific Research and Planning Institute for Alloys and the Treatment of Nonferrous Metals)

SUBMITTED: 17May62

DATE ACQ: 21Jun63

ENCL: 00

SUB CODE: 00

NO REF SOV: 005

OTHER: 003

Cord 2/2

LAYNER, D.I.; BAY, A.S.; TSYPIN, M.I.

Kinetics of oxidation and the structure of scale on titanium.  
Fiz. met. i metalloved. 16 no.2:225-231 Ag '63. (MIRA 16:8)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut  
obrabotki tsvetnykh metallov.  
(Titanium—Metallography) (Oxidation)

LAYNER, D.I.; TSYPIN, M.I.; BAY, A.S.

Microdiffraction study of the low temperature oxidation of polycrystalline materials. Zav. lab. 29 no.9:1093-1095 '63.  
(MIRA 17:1)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov.

LAYNER, D.I.; BAY, A.S.

Certain characteristics of the mechanism of titanium and zirconium oxidation. Trudy Giprotsemetobrabotka no.24: 93-95 '65.

Growth patterns on the surface of titanium scale.

Ibid.:96-101

(MIRA 18:11)



BAY, A.S.; SLESAREVA, Ye.N.; KRUPNIKOVA-PERLINA, Ye.I.;  
CHETVERYAKOV, N.I.; ADUSHKINA, N.A.

Studying the structure of amorphous alloys in the system  
arsenic - sulfur - germanium - selenium. Trudy Gipretsvetmeto-  
brabotka no.24:61-65 '65. (MIRA 18:11)

LAYNER, D.I.; TSYPIN, M.I.; SLESAREVA, Ye.K.; BAY, A.S.

Mechanism of the electric conductivity of rutile ( $TiO_2$ )  
and the applicability of the Vagner-Khauffe theory to the  
oxidation processes of titanium and its alloys. Trudy  
Giprotsetmetobrabotka no.24:86-92 '65. (MIRA 18:11)

L 15180-66 EWP(e)/EWT(m)/EWA(d)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b) IJP(c) MJW/JD/JW/WB  
ACC NR: AP6002666 SOURCE CODE: UR/0126/65/020/006/0864/0867

AUTHOR: Layner, D. I.; Bay, A. S.; Slesareva, Ye. N.; Tsypin, M. I. 71  
69  
B

ORG: Giprotsetmetobrabotka

TITLE: Certain features of the process of the oxidation of titanium 21

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 6, 1965, 864-867

TOPIC TAGS: titanium, metal oxidation, metal scaling, activation energy, cation /  
VTI-1 titanium 15

ABSTRACT: Some quantitative features of the process of the oxidation of VTI-1 titanium at temperatures above 800°C in an air and water-vapor atmosphere at atmospheric pressure are presented. The published literature specifies the rate constants and activation energy for these regimes only for the case of the oxidation of Ti in O<sub>2</sub> and moreover it has been shown that during the oxidation in air of powdered-metal specimens containing 96% Ti the activation energy at temperatures above 800°C differs from the activation energy of oxidation in O<sub>2</sub>. As for the process of the oxidation of Ti in water vapors at atmospheric pressure, even less is known about it. Accordingly, the authors performed a metallographic study of the oxidation of Ti in air with the object of determining the activation energies of the total absorption of oxygen, scaling, and absorption of oxygen by the metal base, as a function of the temperature

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UDC: 539.21

L 15180-66

ACC NR: AP6002666

$D, K_p, \text{cm}^2/\text{sec}$   
 $K_l, \text{cm}/\text{sec}$

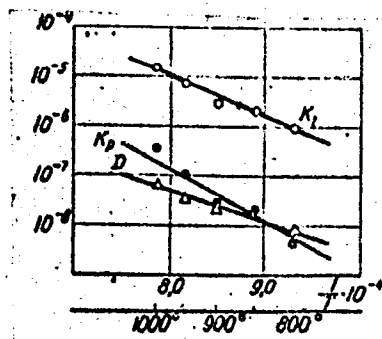


Fig. 1. Temperature dependence of parabolic rate constant  $K_p$  and linear rate constant  $K_l$  of scale growth, as well as of the coefficient  $D$  of the diffusion of Ti ions in scale, for oxidation of Ti in water vapors

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L 15180-66  
ACT NR: AP6002666

2

dependence of the parabolic rate constants of scale growth which showed that the activation energies  $Q_1$  and  $Q_2$  are virtually identical (about 67 kcal/mole-deg) whereas the activation energy  $Q_3$  of the rate constant of oxygen absorption by the metal base is is ~74 kcal/mole-deg. The concomitant study of the oxidation of Ti in water vapors showed that in this case the diffusion of ions of the metal through the scale plays a major role and may be described by the relation  $K_p/D = 2$ , where  $K_p$  is the parabolic scale-growth rate constant and  $D$  is the diffusion coefficient of metal ions. The activation energies calculated on this basis are 46, 40 and 30 kcal/mole-deg, respectively (Fig. 1) Comparison of  $K_p$  and  $D$  in the case of oxidation in water vapors at 800-1000°C shows that cation diffusion plays a principal role in the formation of scale under these conditions. Orig. art. has: 1 formula, 1 table, 5 figures.

SUB CODE: 07, 11, 20/ SUBM DATE: 16Jul65/ ORIG REF: 007/ OTH REF: 004

Card 3/3 vmb

L 18853-66 EWP(e)/EWI(m) WH

ACC NR: AT6006475

SOURCE CODE: UR/2680/65/000/024/0086/0092

AUTHOR: Layner, D. I.; Tsypin, M. I.; Slesareva, Ye. N.; Bay, A. S. B+1 J9

ORG: State Scientific-Research Planning Institute of Alloys and the Processing of Nonferrous Metals (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov)

TITLE: The mechanism of electroconductivity in <sup>15</sup>rutile  $TiO_2$  and the application of the Wagner-Khauffe theory to oxidation processes in titanium and its alloys

SOURCE: Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov. Trudy, no. 24, 1965. Metallovedeniye i obrabotka tsvetnykh metallov i splavov (Metal science and the treatment of nonferrous metals and alloys), 86-92

TOPIC TAGS: titanium, titanium alloy, oxidation, oxide formation, titanium dioxide, electric conductivity, diffusion coefficient, defect structure

ABSTRACT: The effects of alloying on the oxidation of titanium were studied. Kinetic curves-- $\Delta m$  (mg/cm<sup>2</sup>) as a function of  $\tau$  (min)--at 700°, 900° and 1000°C showed that the oxidation of Ti, Ti-Nb (5 at %) and Ti-Ta (5 at %) in air and in steam was

Card 1/3

L 18853-66

ACC NR: AT6006475

parabolic and therefore, diffusion controlled. Alloying slowed the oxidation especially at the start and reached a low of 0.01% for Nb and Ta additions. A logarithmic relationship was observed between the ratio  $\Delta m_{Ti}/\Delta m_{alloy}$  as a function of alloying for the same oxidation temperature and time. The ratio of impurities was equal to the ratio of the diffusion coefficients of the ions in the scale:

$$\Delta m = k_p \tau^{\frac{1}{2}} = 2D_i \tau^{\frac{1}{2}},$$

and

$$\frac{\Delta m_o}{\Delta m} = \frac{D_{Ti}}{D_{alloy}}.$$

Since  $D$  was proportional to the concentration of defect ions,  $\Delta m$  was proportional to concentration during oxidation. An analysis of the data was made by applying the Wagner-Khauffe theory of electroconductivity in oxides. A direct correlation was made between the conductivity of the scales measured at room temperature and  $\Delta m_o/\Delta m$  for the alloys at different temperatures of oxidation in air and steam. By increasing the concentration of pentavalent ions, the electroconductivity of the scales at room temperature rose by several orders as a result of the lowering of Ti ions in interstitial positions. During oxidation, the specific conductivity is a result of nonstoichiometric defects in the scale while the magnitude of the change

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L 18853-66

ACC NR: AT6006475

in conductivity is dependent on the actual types of defects and their charge valency. Difficulties in explaining quantitative data are due to the formation of multi-layered scales and the dependence of their concentration gradients on temperature and time of oxidation. Orig. art. has: 4 figures, 2 formulas.

SUB CODE: 11/

SUBM DATE: 00/

ORIG REF: 013/

OTH REF: 006

Card 3/3 *hw*



L 28857-66 EWT(m)/EWP(t)/ETI IJP(c) JD/WB

ACC NR: AF6010411

SOURCE CODE: UR/0126/66/021/003/0466/0467

AUTHOR: Layner, D. I.; Bay, A. S.; Gil'dengorn, I. S.

ORG: Giprotsvetmetobrabotka

TITLE: On the mechanism of the oxidation of iron

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 3, 1966, 466-467

TOPIC TAGS: metal oxidation, iron, iron compound, physical diffusion, ion, physical chemistry theory

ABSTRACT: There is a discrepancy between two theories of this mechanism. Thus, Pfeil (Iron and Steel Inst., 1929, 119, 501) established that the dominant factor in the oxidation of iron is the diffusion of Fe ions through the scale, whereas Davies et al. (J. Metals, 1951, 3, 10, 889) and Himmel et al. (J. Metals, 1953, 5, 6, 827) believe that oxygen diffusion accounts two-thirds for the formation of  $Fe_3O_4$  layers and entirely for the formation of  $Fe_2O_3$  layer and consider the diffusion of cations as the dominant factor in the oxidation of iron. To clear up this discrepancy, the authors performed a simple experiment: specimens of armco iron were oxidized in air at  $1000^{\circ}C$  until a  $Fe_2O_3$  layer several microns thick had formed. After this, a platinum tag (wire of 100- $\mu$  diameter) was placed on the surface of the specimen without removing it from the furnace and the oxidation was continued for several hours.

Card 1/2

UDC: 669.018.85: 620.193

L 28857-66

ACC NR: AP6010411

Subsequent investigation showed that the tag lay deep in the layer of wustite. Additional experiments with annealing the scale separated (together with the tag) from the iron showed that the penetration of the tag into the scale is not associated with creep. These findings contradict the theory of Davies et al. and Himmel et al. and can be explained only by the mechanism suggested by Pfeil as well as by V. I. Arkharov (Okisleniye metallov, Sverdlovsk, Metallurgizdat, 1945). (Arkharov showed that at high temperatures the  $\text{Fe}_2\text{O}_3$  layer is the first to appear. Below it form the  $\text{Fe}_3\text{O}_4$  and  $\text{FeO}$  layers owing to the reduction of the  $\text{Fe}_2\text{O}_3$  oxide by Fe ions. The scale forms at the  $\text{Fe}_2\text{O}_3$ - $\text{O}_2$  interface.) Orig. art. has: 1 figure

SUB CODE: 11,071 SUM DATE: 09Jun65/ ORIG REF: 001/ OTH REF: 003

Card 2/2 CC

ACC NR: AF6036114

(N)

SOURCE CODE: UR/0365/66/002/006/0692/0699

AUTHOR: Layner, L. I.; Slesareva, Ye. N.; Tsypin, M. I.; Bay, A. S.

ORG: Scientific Research Institute for Alloys and the Working of Nonferrous Metals  
(Nauchno-issledovatel'skiy institut splavov i obrabotki tsvetnykh metallov)

TITLE: Oxidation mechanism of titanium alloys containing up to 11% aluminum

SOURCE: Zashchita metallov, v. 2, no. 6, 1966, 692-699

TOPIC TAGS: titanium containing alloy, metal oxidation, aluminum

ABSTRACT: A study was made of binary titanium-aluminum alloys containing 0.01, 0.87, 2.85, 5.05, and 11.20 weight percent aluminum. The alloys were twice melted in an arc furnace with consumable electrodes, and then forged, rolled, annealed, and planed to eliminate the oxygen-saturated layer. The polished samples had dimensions of 1.2 x 1.2 x 1.5 cm, with an opening 2 mm in diameter. A day before the experiment, the samples were degreased in benzene and stored in a desiccator. The samples were charged into a resistance furnace with a working chamber 150 x 400 mm, heated to the given temperature. Temperature variations in the furnace did not exceed  $\pm 5\%$ . In some of the experiments steam was supplied at a temperature of 600°. In this case, the atmosphere of the furnace contained 60-70% water vapor. The rate of oxidation was determined by the gravimetric method. The effect of alloying on heat resistance was evaluated from the

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UDC: 620.193.5

ACC NR: AP6036114

relative change in weight of the samples. Phase analysis of the scale and of the layers beneath the scale was done on a Type URS-501 diffractometer. The experimental results with respect to the relative weight change of the alloys as a function of temperature, holding time, and composition of the gas medium are shown in a series of curves and tables. Based on the experimental data it is concluded that two basic mechanisms play a role in the process of the oxidation of titanium-aluminum alloys: 1) acceleration of diffusion through the scale due to a shift of the ionic equilibrium as a result of the entrance of trivalent aluminum ions into the titanium dioxide lattice; 2) slowing down of the oxidation when the amount of aluminum oxide in the scale increases to such an extent that there is formed a more or less thick layer of  $Al_2O_3$  which hinders the diffusion of the titanium ions. Orig. art. has: 2 figures and 4 tables.

SUB CODE: 11/ SUBM DATE: 21Dec65/ ORIG REF: 015/ OTH REF: 012

Card 2/2

SUSLOV., V. (Leningrad); BAY, I. (Leningrad).

Increase the number of repair services to the population.

Prom.koop no.7:9 JI '57.

(MLRA 10:8)

(Service industries)

L 52113-65    EPP(c) / PDP / PDP(4) / PWA(c) / BWT(m) / T    Ps-4 / Pr-4 / Ps-4    RPL    WW / RM

ACCESSION NO. 42-1574-100

ATTN: Dr. Yehonah, A. A. M., Gershon, A. A. M., 1000 1st St. N.W., Wash., D. C. 20004

TITLE: A method for obtaining n-cyanostyrene. Class 12, No. 170490

SOURCE: Vyulleten' izobreteniy i tovarnykh znakov, no. 2, 1965, 21

TOPIC TAGS: cyanoacetylene, vinylbenzoic acid, amide, phosphorus pentoxide

ABSTRACT: This Author Certificate presents a method for obtaining n-cyanostyrene. The method involves the reaction of styrene with cyanogen chloride in the presence of a catalyst. The reaction is carried out in a sealed tube at a temperature of 100°C. for 24 hours. The product is purified by distillation and has a boiling point of 100°C. at 1 mm. Hg. The yield is 80%.

ASSOCIATION: Engineering Scientific Association "Khimicheskoye Mashinostroyeniye"  
Prezidentskiy prikazaniye SSSR (Enterprise of the State Committee of the Chemical and National Industry of the USSR)

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

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1992

IN EGF SUPPLY: 0%

1. *Journal of the American Medical Association*, 1997; 277: 1033-1038.

Cord 1/1

L 18959-65 EWT(m)/EPF(c)/EPR/EWP(j) Pc-L/Pr-L/Ps-L RPL EW/RM

ACCESSION NR: AP4049466

S/0079/64/034/011/3609/3610

AUTHOR: Bay, L.I., Yakubovich, A. Ya., Muler, L.I.

TITLE: Phosphorus-containing isocyanates. 1. Synthesis of diisocyanates of methylphosphinic and phenylphosphinic acids

SOURCE: Zhurnal obshchey khimii, v. 34, no. 11, 1964, 3609-3610

TOPIC TAGS: diisocyanate synthesis, methylphosphinic acid, phenylphosphinic acid, isocyanate, phosphinic acid dichloroanhydride

ABSTRACT: Diisocyanates were prepared by adding 0.1 g-mol of the dichloroanhydride of phosphinic acid and 50 ml acetonitrile dropwise in dry nitrogen to a mixture of 150 ml acetonitrile and 0.22 g-mol silver cyanate heated to 60C, raising the temperature to 80-85C and stirring for 2 hours. The cooled mixture was filtered, the solvent evaporated, and the residue distilled in a vacuum. The diisocyanate of methylphosphinic acid ( $C_3H_3N_2O_3P$ ) had b.p. 71C (2mm),  $n_D^{20}$  1.4680,  $d_4^{20}$  1.330; that of phenylphosphinic acid ( $C_8H_5N_2O_3P$ ) had b.p. 123C(2mm),  $n_D^{20}$  1.5480,  $d_4^{20}$  1.3530. Using silver cyanate in place of potassium cyanate increased the yield from 15 to 30%. Resinification of the products was prevented by holding at 80-85C for less than one hour. Methylphosphoric

Card 1/2

L 18959-65

ACCESSION NR: AP4049466

acid did not react in this manner.

ASSOCIATION: none

SUBMITTED: 22Aug63

ENCL: 00

SUB CODE: OC

NO REF SOV: 000

OTHER: 002

Cord 2/2



BAY, L.I.; YAKUBOVICH, A.Ye.; MULER, L.I.

Synthesis of  $\alpha$ -substituted styrenes. Zhur. ob. khim. 34 no.11:  
3696-3697 N \*64 (MIRA 18:1)

ACC NR: AP7002551

(A,N)

SOURCE CODE: UR/0413/66/000/023/0031/0031

INVENTORS: Bay, R. D.; Breslav, I. Z.

ORG: none

TITLE: Multivibrator. Class 21, No. 189015 [announced by Novosibirsk Scientific Research Electrical Engineering Institute (Novosibirskiy nauchno-issledovatel'skiy elektrotekhnicheskiy institut)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 23, 1966, 31

TOPIC TAGS: multivibrator, transistorized circuit

ABSTRACT: This Author Certificate presents a transistorized multivibrator with collector-base coupling. To prevent cutoff of the self-oscillations, the transistor collectors are connected to the base of one of the transistors through resistors and a common diode (see Fig. 1). The junction of the resistors and diode is connected through a resistor to the positive terminal of the power supply for p-n-p transistors or to the negative for n-p-n transistors.

Card 1/2

UDC: 621.373.431.1

0930 2693

ACC NR: AP7002551

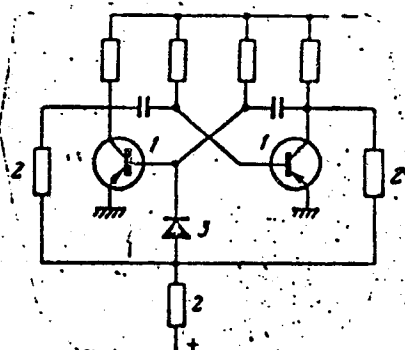


Fig. 1. 1 - transistors; 2 - resistors; 3 - diode

Orig. art. has: 1 diagram.

SUB CODE: 09/ SUBM DATE: 04Jan65

Card 2/2

L 44001-66 EWT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AP6029947

SOURCE CODE: UR/0413/66/000/015/0112/0112

INVENTOR: Bay, R. D.; Breslav, I. Z.; Brovman, Ya. S.; Fel'dman, A. V.

ORG: none

TITLE: Linear digital circular and elliptic interpolator. Class 42, No. 184528

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 112

TOPIC TAGS: interpolation, interpolator

ABSTRACT: The linear digital circular and elliptical interpolator whose block diagram is shown in Fig. 1 is described. It consists of a unit for measuring the

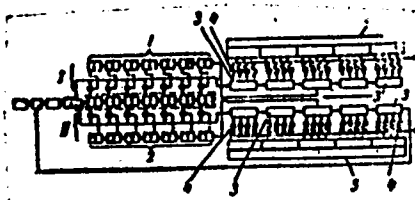


Fig. 1. Linear digital interpolator

I, II - Decimal multipliers;

1, 2 - register-counters; 3 - binary-decimal counter; 4 - voltage pulse gates; 5 - decade register.

frequency from two coordinates by means of two binary multipliers having one common frequency divider and two register-counters. The latter contain negative feedback in the form of an additional counting block. It is applied from the outputs

Card 1/2

UDC: 62-503.52-529: 681.142

L 44001-66

ACC NR: AP6029947

of each binary multiplier of one coordinate to the counting input of the register-counter from the binary multiplier for the other coordinate. The interpolator also contains one decimal multiplier for each coordinate. These, in turn, are comprised of a decade (binary coded decimal) counter, voltage pulse gates, and a decade register for the entry of initial data corresponding to the radius of curvatures, ellipse minor axes, and linear displacements. The counting input of each decade counter is connected to the output of the binary multiplier of one coordinate. The output of each decade from a pair of decades of the same order belonging to the decade counters from each coordinate, which assure the entry of five pulses into these decades, is connected to the counting input of the register-counter of the other coordinate. This counter arrangement facilitates a more convenient entry of initial data and at the same time simplifies the programming for the interpolation of circular or elliptical arcs whose angles are multiples of  $\pi/2$ . Orig. art. has: 1 figure. [BD]

SUB CODE: 09/ SUBM DATE: 25Jun62/ ATD PRESS: 5070

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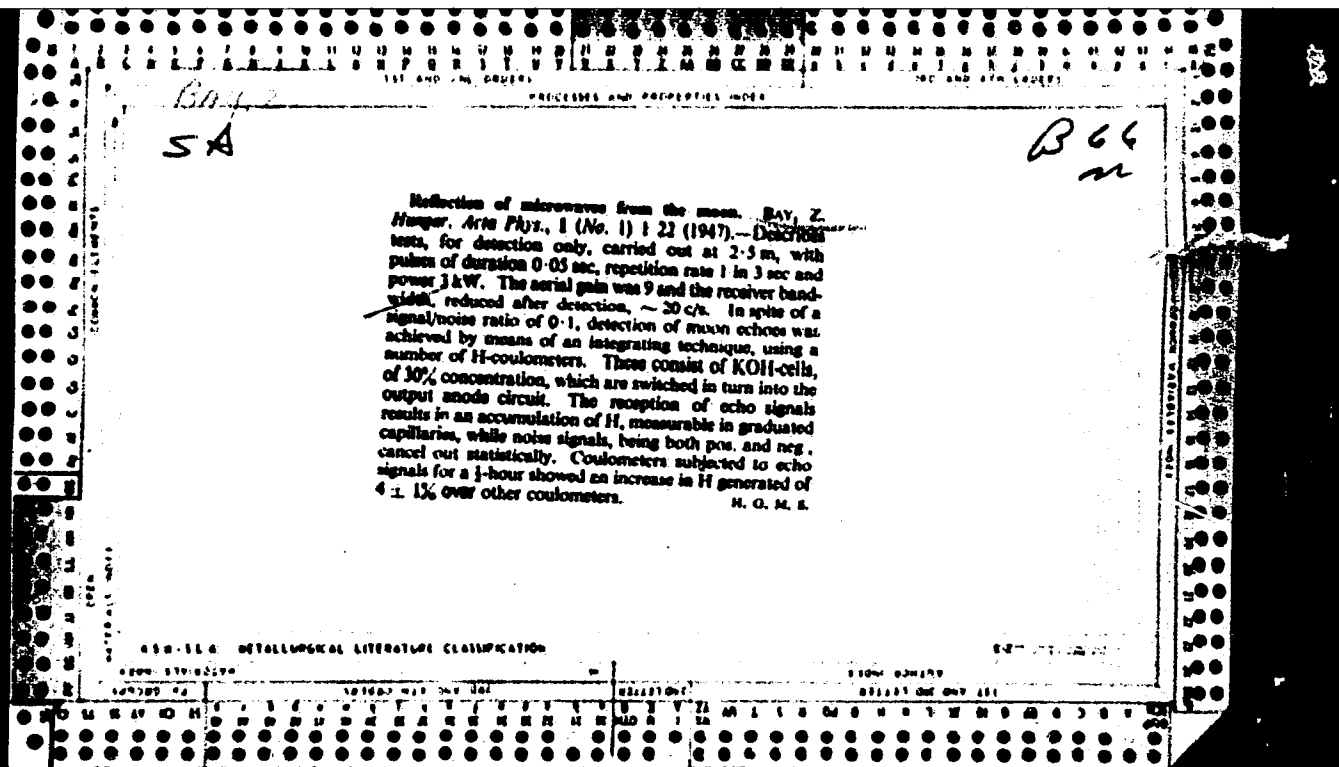
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Micro-wave investigations in Hungary during the second world war. I-II. Rep. 7. Elektrotechnika, 38, 1-6 (May); 29-40 (Aug., 1946) in Hungarian.  
421.396.96 : 323.531 1055

ASD-55.6 METALLURGICAL LITERATURE CLASSIFICATION

SYMBOLS										SYMBOLS										SYMBOLS										SYMBOLS																			
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APR 1948  
Nuclear Physics Methods of Measurement

350. Coincidence device of  $10^{-8}$ - $10^{-9}$  sec. resolving power. by Z. Ray and G. Papp.  
*Nature*, 161. p. 59-60. January 10, 1948.

Coincidence circuits with resolving times much exceeding  $10^{-6}$  sec. can be obtained by making use of electron multiplier tubes. The device, which is a modification of the Rossi type circuit, is shown in a diagram. Ultra high-frequency 1.000 tubes are used. The device was designed chiefly for investigations in nuclear physics. Experiments similar to those of Bethe are going on in the ultra-violet and visible region. Further details are to be published.



BAYADIN, L.N.; LOBUSEV, A.K.; PROSHINA, K.A.; SMIRNOVA, A.A.; SHELEPINA, L.A.

Experimental data on plastic arterial surgery in case of an infected wound; preliminary report. Trudy 1-go MMI 16:139-146'62.  
(MIRA 16:6)

1. Iz kafedry operativnoy khirurgii i topograficheskoy anatomii (zav. - chlen-korrespondent AMN SSSR prof. V.V.Kovanov) Pervogo Moskovskogo ordena Lenina meditsinskogo instituta.  
(ARTERIES—SURGERY) (SURGERY, PLASTIC)

BAYADINOV, A. N.

USSR/Medicine, Veterinary - Foot-and-Mouth Disease Aug 52

PA 233711  
"Variations of the Virus in Foot-and-Mouth Disease," V.I. Kindyakov, A.N. Bayadinov, S. M. Filipovich, O.S. Nikonova, Sci Res Vet Inst, Kazakh Affiliate, All-Union Acad of Agr Sci Inst V.I. Lenin

"Veterinariya" No 8, pp 21-27

Discusses the variations in types of the virus causing foot-and-mouth disease. Lists 45 strains, classified according to types O, A, and C. On

233711

the basis of expts, assumes that there is only one parent virus with the ability of changing its "biological" properties under the influence of outside factors. States that the major factor in causing changes is the passage of the virus through the living organism of an animal with an acquired immunity to the disease. Authors recommend that herds of cattle that have recovered from the foot-and-mouth disease should be kept apart from cattle in the acute stages of the disease and that in research and treatment of foot-and-mouth disease consideration should be given to possible changes in the manifestation of this virus. Recommend further research on the biol properties of the virus.

233711

BAYADINOV, A. N., JR Sci AID

USSR/Medicine, Veterinary - Foot-and-Mouth Disease

Aug 53

"Compulsory Inoculation of Swine Against Foot-and-Mouth Disease," V. I. Kindykov, Cand Vet Sci; A.N. Bayadinov, Jr Sci AID, Inst of Vet Sci, Kazakh Affiliate, All-Union Acad of Agr Sci im V. I. Lenin

Veterinariya, Vol 30, No 8, pp 17, 18

The clinical course of the foot-and-mouth disease in swine is much the same whether the disease is contracted spontaneously or produced artificially by inoculation. Expts have shown that better results were obtained in those swine, immunized

265T35

against the foot-and-mouth disease, which were well fed and well taken care of. It is advisable to resort to artificial infection among well maintained herds of swine using a 1 to 500 diln of a foot-and-mouth disease virus suspension. Suspension of virus of the foot-and-mouth disease is applied to the scarified surface of the snout with a tooth-brush.

KESTEL'MAN, V.N.; BAYADZHIYEV, B.N.

Where D.N. Sankian is right and where he is wrong.  
Standartizatsiia 29 no.9:60-61 8 '65.

(MIRA 18:12)

*BAYADZHYAN, N.G.*

5

35:58

P/046/62/001/002/001/003  
D256/D302

9.6150 (also 1962)

AUTHORS: Grigorov, N.L., Tretyakova, Ch.A., Shestoperov, V.J.,  
~~Babyan, Kh.P.~~ Bayadzhyan, N.G., Buja, Z., Zonkiewicz,  
J., Massaloki, J., and Olch, A.

TITLE: Integral spectrum of ionization pulses caused by  
nuclear active particles of cosmic radiation at  
mountain altitudes

PERIODICAL: Nukleonika, v. 7, no. 2, 1962, 61 - 73

TEXT: The investigation was conducted in order to obtain information concerning: 1) The pulse spectrum and its dependence upon the dimensions of the apparatus, 2) the altitude dependence of the frequency of the registered pulses, 3) the mechanism of local generation of  $\pi^0$  mesons by nuclear active particles. The apparatus covered an area of 10 m<sup>2</sup> and it consisted of 6 horizontal trays of 33 ionization chambers each, the trays being separated by graphite and lead absorbers, arranged to enable detection of electromagnetic cascades created by the decay products of  $\pi^0$  mesons and evaluation

Card 1/4

Integral spectrum of ionization ...

P/046/62/007/002/001/003  
D256/D302

of the energy transferred in the interactions up to  $2 \times 10^{13}$  ev. The pulses and pulse heights were recorded photographically from screens of 6 cathode-ray oscilloscopes with waiting spot. Using mechanical selectors it was possible to register subsequently individual pulses from all the ionization chambers, each of them being connected to its own amplifier. The experiments were carried out at two altitudes: 200 m (Moscow) and 3200 m above the sea level (the Mountain Station of the Armenian Academy of Sciences at mount Aragao). Owing to the independent registration in each ionization chamber it was possible to divide the registered pulses into two groups: 1) Single pulses, i.e. events in which the pulse in each tray was registered by a small number of ionization chambers; 2) 'Structural' pulses defined as events occurring at least in one of the trays 1 to 4, in such a way that the groups of ionization chambers showing pulses were interspaced with one or more chambers without any ionization. The first group of pulses was attributed to nuclear active particles as well as  $\mu$  mesons, and the second one could be produced only by groups of nuclear active particles falling simultaneously on the apparatus, as it was borne out from the

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Investigation of the influence of the dimensions of the apparatus used upon the ionization spectra. The dependence of the percentage of the structural pulses upon the registered pulse height was examined, showing that the percentage of the structural pulses is a monotonic function increasing with the increase of the total pulse height registered i.e. with increasing the total energy. In order to assess the role of  $\mu$  mesons, the altitude dependence was investigated of generating pulses of different nature. The integral spectra were found to be exponential:  $N = A e^{-\gamma H}$  in the region of pulse heights from  $10^3$  to  $10^5$  particles. The following conclusions were derived from the analysis of the experimental results: 1) The spectra induced by nuclear active particles depend essentially on the dimensions of the apparatus and on the pulse heights. The exponent  $\gamma$  of the integral spectrum for pulse heights (measured in numbers of particles) ranging from  $2 \times 10^3$  to  $2 \times 10^5$  particles changes from  $\gamma = 1.41$  to  $\gamma = 2.00$  for the area of the apparatus changing from  $330 \times 330 \text{ cm}^2$  to  $10 \times 330 \text{ cm}^2$  respectively. 2) At mountain altitudes the exponent  $\gamma$  of the integral spectrum for single nuclear active particles was determined to be  $\gamma = 2.01 \pm 0.08$  for  $3 \times$

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$10^3 \leq I \leq 3 \times 10^4$ , and for all the nuclear active particles including the structural pulses  $\gamma = 1.62 \pm 0.04$ . 3) The integral spectrum of the large pulses by  $\mu$  mesons is also of an exponential form with  $\gamma = 2.22 \pm 0.14$ . 4) At the sea level the contribution of the  $\mu$  mesons constitutes approx. 70 % of all single pulses with a height  $\geq 2 \times 10^3$  particles and 50 % for heights  $\geq 2 \times 10^4$  particles. There are 5 figures, 4 tables and 4 Soviet-bloc references. X

ASSOCIATION: Institute of Nuclear Physics, University of Moscow; (N.L. Grigorov, Ch.A. Trotyakova, and V.J. Shestoporov); Institute of Nuclear Physics, Armenian Academy of Sciences, Yerevan; (Kh.P. Babayan, and N.G. Bayadzhyan); Institute of Nuclear Research, Polish Academy of Sciences, Cracow; Academy of Mining and Metallurgy, Cracow, II Department of Physics (Z. Buja, J. Loskiewicz, J. Massalski, and A. Oloś)

SUBMITTED: January, 1962

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БРЯДЗЫН, Н. Г.

GRIGOROV, N.L.; TRETYAKOVA, C.A.; SHESTOPEROV, V.J.; BABAYAN, C.P.;  
BAYADSYAN, N.G.; BABECKI, J.; LOSKIEWICZ, J.; MASSALSKI, J.;  
OLES, A.

Investigations of energy particles interactions with atomic  
nuclei at the mountain altitudes. Nukleonika 7 no.12:  
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1. Institute of Nuclear Physics, University of Moscow, Moscow  
(for Grigorov, Tretyakova, Shestopierov). 2. Armenian Academy  
of Sciences, Institute of Nuclear Physics, Erevan (for Babayan  
and Bayadsyn). 3. Institute of Nuclear Research, Laboratory of  
High Energy Physics, Krakow, Polish Academy of Sciences (for  
Babecki, Loskiewicz, Massalski, Oles).

BAYADZHIYEV, G.

Boric acid poisoning following erroneous subcutaneous injection  
instead of physiologic serum. Med. letopisi 42 no.5-6:593-595  
May-June 50. (CIML 20:7)

1. Dr. G. Boyadshiyev. 2. First Oblast State Hospital (Director---  
Dr. G. Boyadshiyev. Obstetric-Gynecological Division (Head---Dr.  
G. Boyadshiyev).

BAYAI J.

HUNGARY/Cultivated Plants - Fodder.

M.

Abs Jour      Ref Zhur - Biol., No 4, 1958, 15718

Author        : J. Bayai

Inst          : -

Title         : The Cultivation of Fodder Sorghum and Other Domestic  
                 Forage Crops.  
                 (Vyrashchivaniye kormovogo sorgo i drugikh otechestvenny-  
                 kh kormovykh kul'tur).

Orig Pub      : Magyar mezőgazd., 1957, 12, No 5, 12-13

Abstract      : Light is thrown on the general condition of the culti-  
                 vation of forage crops, as well as pointing out the  
                 short-comings in this regard in Hungary. Particular  
                 attention is paid to fodder sorghum as a crop which has  
                 great significance in those areas which suffer from  
                 annual drought.

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BAYAKHCHEV, M.S.

"Voltage Regulation with Series Connected Capacitors,"  
Elektrichestvo, No 9, 1949 Engr. 1949

BAYAKHCHEV, S.

Twentieth anniversary of the Erivan Rubber Tire Plant. Prom. Arm. 6  
no.12:3-5 D '63. (MIRA 17:2)

1. Direktor Yerevanskogo shinnogo zavoda.

S/031/61/000/002/002/003  
A161/A133

AUTHORS: Vdovenko, M. I., Bayakhunov, A. Ya., Kondin, V. F.

TITLE: Investigation of iron sulfide oxidation in suspension

PERIODICAL: Vestnik. Akademii nauk Kazakhskoy SSR, no. 2, 1961, 52 - 61<sup>17</sup>

TEXT: The existing data on the mechanism and rate of iron sulfide oxidation were obtained in experiments where only the factors affecting the process rate were determined, but the present state of the theory and practice of roasting (in the "boiling layer") and melting (in suspension and in the cyclone) require studies in conditions close to the real process. The described investigation was conducted in four stages: 1) determination of the reaction surface area; 2) of the traveling speed of the sulfide particles in the furnace; 3) of the reaction surface temperature; 4) of roasting degree of sulfide. The iron sulfide powder was screened through a 200-micron meshscreen and introduced into the furnace in single particles. The reaction surface was calculated assuming globular shape. Under the microscope the particles were polygonal. They turned into globules in the heat. The temperature of the moving burning particles was determined by a photo-pyrometric method based on comparison of the shadow densities on images with a

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reference picture with known temperatures. The particles were photographed by a high-speed camera using a color film, and the shadow density was measured with two filters - a red and a blue one. The reference image was of the filament of an optic pyrometer. The temperature and exposition time were determined graphically and the degree of roasting by gas analysis as well as by chemical and X-ray analysis of the roasted particles. The test assembly is illustrated (Fig. 1). Sulfide was fed by an electromagnetic feeder (1) and a water-cooled mobile pipe (2) into vertical furnace (3). The roasted particles were collected in cooled receiver (4). Gas from the receiver was extracted through absorber bulbs (5) absorbing  $\text{SO}_2$  and  $\text{SO}_3$ , and the quantity of burned sulfur was determined by titration with iodine or alkali. Air was fed by pipe (2) after purifying and drying in vessels (6). The air flow was kept constant and measured with flow meter (7). The system resistance was measured with pressure gage (8), and the quantity of roasted sulfide by weight prior to and after roasting. The temperature of the particles was measured from photographs taken through the bottom furnace window (11) with a "Zenit" camera of single particles on the dark background. The speed of particles was determined by the number of frames taken through both windows (11), top and bottom, with a "Kiyev" camera (9) through a mirror system in a tube (10). The test results are discussed and illustrated in graphs and a table (Table 1). The table shows three temperature

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ranges with a characteristical prevalence of certain reactions. It was not possible to separate each reaction in pure form. Reactions dominating in high temperature apparently will be present in lower ranges, and vice versa. No SO determinations were made, but it had been found in the iron sulfide oxidation process in a work carried out previously at the Ural'skiy filial Akademii nauk SSSR (The Ural Branch of the Academy of Sciences USSR). In a comparison the determined temperature of particles agreed with the theoretical one up to 800°C in the medium (or 1,050° on the particle surface), but from 800°C up the difference was considerable (the theoretical was higher). This may indicate that the intermediate CO compound is forming with much lower heat liberation than in oxidation to CO<sub>2</sub> and SO<sub>3</sub>, and that further oxidation of SO goes on in a gaseous state and the liberating heat has no heating effect on the particles. Conclusions: 1) The new method made it possible to determine the sulfide particle, temperature and the reaction surface area. 2) The obtained data indicate three different stages in the process at different temperatures - formation of higher sulfur oxides at low temperature, and low oxides at high temperature, up to 80, with a faster process rate in the third stage. 3) The kinetic constants were determined for the summary process in separate temperature ranges. There are 5 figures, 2 tables and 5 Soviet-bloc references. ✓

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Table 1

Temp. °C	oxidation reactions	Formation reactions of oxides	
		SO <sub>3</sub>	SO <sub>2</sub>
300 - 600° 100 - 1050° 1050 - 1300°	$\text{FeS} + 2\text{O}_2 \rightarrow \text{FeSO}_4$ $2\text{FeS} + 3,5\text{O}_2 \rightarrow \text{Fe}_2\text{O}_3 + 2\text{SO}_2$ $2\text{FeS} + 2,5\text{O}_2 \rightarrow \text{Fe}_2\text{O}_3 + 2\text{SO}$	$\text{FeSO}_4 \rightarrow \text{FeO} + \text{SO}_3$ $2\text{SO}_2 + \text{O}_2 = 2\text{SO}_3$	$2\text{FeS} + 3,5\text{O}_2 = \text{Fe}_2\text{O}_3 + 2\text{SO}_2$ $2\text{SO} + \text{O}_2 = 2\text{SO}_2$

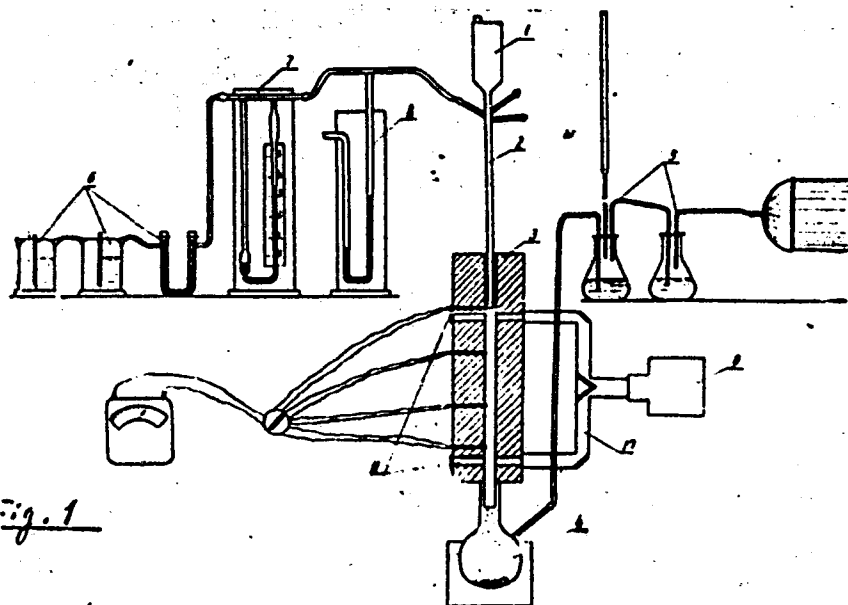
Kinetic constants of summary process	
E, cal/mol	K <sub>0</sub> , 1/sec
470	0,25
11750	18
45700	5,57 · 10 <sup>4</sup>

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Figure 1



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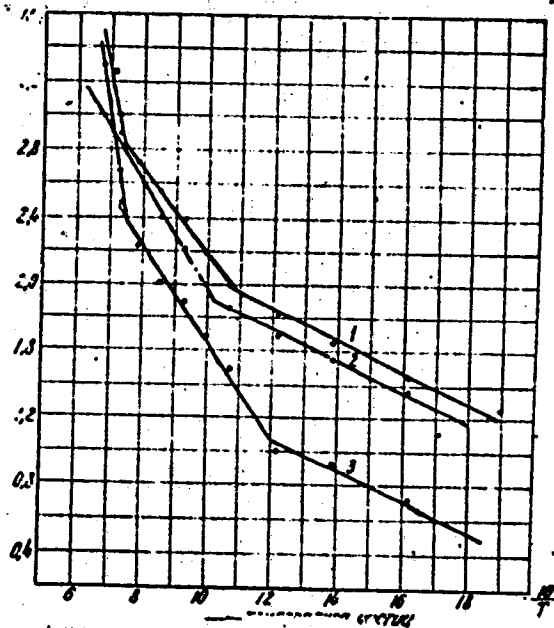
Figure 4: Dependence of the logarithm of the reaction rate constant on the inverse value of absolute temperature  
1-summary process of sulfide oxidation, 2-oxidation of sulfide to sulphate,  
3-oxidation of sulfide with formation of  $\text{SO}_2$

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Investigation of...

Figure 4 continued

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A161/A133



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BAYAKHUNOV, A. Ya.; VDOVENKO, M. I.; YERSHINA, L. M.

Oxidation rate of copper sulfides. Izv. AN Kazakh. SSR. Ser.  
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(Copper sulfide)

BAYAKHUNOV, Ya.K.

Cultivation of cellulose bacteria of the rumen. Izv.  
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BAYAKHUNOV, Ya. K.

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So: U-3566, 15 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 13, 1949)

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SO: Sum, No. 670, 29 Sep 55—Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)



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BAYAN, O.A.

BAYAN, O.A.

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CU DA ICU NIC NJP NN WaU

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RAJAN, J. J.

Razvedchik nedr. Rasskazy iz zhizni akad. A.E.Fersmana (Ore prospector; stories from the life of Acedemician A.E.Fersman). Moskva, Gos. izd-vo detskoi lit-ry, 1953. 204 p.

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BAYAN, OI'ga; DZHALALBEKOVA, L.A., redaktor; POLOVOV, M.D., redaktor;  
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[The father of Russian geology; stories of the life and works of  
Academician A.P.Karpinskii] Otets russkoi geologii; rasskazy o  
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260 p. (MLBA 8:11)

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76 P. Maps, Ports. (Russkiye Puteshestvenniki)

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ANDROSOV, N. S.; PISARENKO, F. Yu.; BAYANDIN, L. P.

Perforating ulcer of the stomach and duodenum. Vest. khir. no.4:  
15-19 '62. (MIRA 15:4)

1. Iz khirurgicheskogo otdeleniya (zav. - N. S. Androsov)  
Murmanskoy oblastnoy bol'nitsy (gl. vrach - Z. V. Macharashvili)

(PEPTIC ULCER)

BAYANDIN, N.

The valley of the Irtysh River and its economic utilization.  
Trudy Sekt.geog.AN Kasakh.SSR no.4:180-186 '59.

(MIRA 13:4)

(Irtysh Valley--Physical geography)

BAYANDIN, P.A. (Murmansk); SHVETSOV, I.M.; TIMOFEYeva, N.V.; KOVAL', V.P.; KOZLOVA, E.Z.; TRET'YAKOV, N.I. (Kaliningrad); MAMEDOV, E.SH. (Poselok Martuni, AzerSSR); BOROVYY, Ye.M.; DULAYEV, S.G. (Grodno); GERASIMOV, B.A. (Lugansk); MEL'NIK, L.A. (Chernovtsy); MIGAL', L.A.; GUBANOV, A.G.; GOROVENKO, G.G. (Kiyev); SHAROV, B.K. (Chelyabinsk); SHUVALOVA, Z.A. (Sverdlovsk) NEYMARK, I.I.; ARYAYEV, L.N. (Odessa); KABANOV, A.N.; KONVALOV, Yu.S.; ZAK, V.I. (Orenburg); MIKHAYLOV, M.M.; SEZ'KO, A.D. (Voronezh); SHALAYEV, M.I.; DGNIN, V.I. (Saratov).

Abstracts. Grudn. khir. 5 no.3:110-126 My-Je'63 (MIRA 17:1)

1. Iz kafedry normal'noy anatomii Ryazanskogo meditsinskogo instituta imeni akademika I.P.Pavlova (for Shevtsov).
2. Iz Sochinskogo nauchno-issledovatel'skogo instituta kurortologii i fizioterapii Ministerstva zdravookhraneniya RSFSR (for Timofeyeva).
3. Iz khirurgicheskogo otdeleniya Ternopol'skoy klinicheskoy gorodskoy bol'nitsy (for Koval').
4. Iz kafedry topograficheskoy anatomii i operativnoy khirurgii (zav. - prof. A.P. Sokolov). Permskogo meditsinskogo instituta (for Kozlova).
5. Iz khirurgicheskogo otdeleniya (zav. - Ye. M. Borovyy) Rovenskoy oblastnoy bol'nitsy (glavnyy vrach - UkrSSR V.M. Vel'skiy) (for Borovyy).

(Continued on next card)



BAYANDIN, P.A.— (continued) Card 2.

6. Iz fakul'tetskoy khirurgicheskoy kliniki ( dir. - prof. I.M. Popov'yan) i gospital noy terapevticheskoy kliniki ( dir. - prof. L.S.Shvarts) lechebnogo fakul'teta Saratovskogo meditsinskogo instituta ( for Migal'). 7. Iz kafedry fakul'tetskoy khirurgii ( zav. - prof. I.I.Neymark) Altayskogo meditsinskogo instituta ( for Neymark). 8. Iz Novosibirskogo gorodskogo protivotuberkuleznogo dispansera ( for Kabanov). 9. Iz kafedry fakul'tetskoy khirurgii (zav. - prof. I.A.Ivanov) Permskogo meditsinskogo instituta ( for Shalayev).

BAYANDINA, D.G.; GRINENKO, N.V.; KROTOV, A.I.

Combined effect of phenasal and dichlorophen on the imaginal stage of Hymenolepis in white mice. Med. paraz. i paraz. bol. 34 no.1:107-109 Ja-F '65. (MIRA 18:8)

1. Laboratoriya biologii gel'mintov i spetsificheskogo deyatviya preparatov Instituta meditsinskoy parazitologii i tropicheskoy meditsiny imeni Ye.I.Martsinovskogo Ministerstva zdravookhraneniya SSSR, Moskva.

BAYANDINA, D.G.; BRAUDE, M.B.; BEKHLI, A.F.

Experimental study of the anthelmintic properties of dichlorophene.  
Med. paraz. i paraz. bol. 33 no.5:591-594 S-0 '64.

(MIRA 18:4)

1. Otdel gel'mintologii i otdel sinteticheskikh preparatov  
Instituta meditsinskoy parazitologii i tropicheskoy meditsiny  
imeni Martsinovskogo Ministerstva zdravookhraneniya SSSR, Moskva.

BAYANDINA, D.G.; BEKHLI, A.F.; BRAUDE, M.B.; KROTOV, A.I.; FEDOROVA, S.N.

Experimental study of the new anthelmintic ionezan and its combination with acrichine. Report No.1: Experimental study of ionezan. Med. paraz. i paraz. bol. 31 no.6:673-677 H-D '62. (MIRA 17:11)

1. Iz otdela gel'mintologii (zav. - prof. V.P. Pod'yapol'skaya) i otdela sinteticheskikh preparatov (zav. - prof. V.I. Stavrovskaya) Instituta meditsinskoy parazitologii i tropicheskoy meditsiny imeni Martsinovskogo (dir. - prof. P.G. Sergiyev) Ministerstva zdравo-okhraneniya SSSR.